इंटरनेट मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

"जानने का अधिकार, जीने का अधिकार"
Mazdoor Kisan Shakti Sangathan
"The Right to Information, The Right to Live"

"पुराने को छोड नये के तरफ"
Jawaharlal Nehru
"Step Out From the Old to the New"

IS 1885-80 (1994): Electrotechnical vocabulary, Part 80: General terms on measurements in electricity [ETD 1: Basic Electrotechnical Standards]

"ज्ञान से एक नये भारत का निर्माण"
Satyanarayan Gangaram Pitroda
"Invent a New India Using Knowledge"

Act Number 22 of 2005
The Indian Parliament
RIGHT TO INFORMATION

Made Available By
Public.Resource.Org

"ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है"
Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

BLANK PAGE

BRUTUM FULMEN
IGNORANTIA JURIS NON EXCUSAT
PROTECTED BY COPYRIGHT

IS 1885 (Part 80) : 1994
IEC Pub 50 (301) (1983)

(Reaffirmed 2004)

भारतीय मानक

विद्युत तकनीकी शब्दावली

भाग 80 विद्युतीय मापन संबंधी सामान्य पारिभाषिक शब्द

Indian Standard

ELECTROTECHNICAL VOCABULARY

PART 80 GENERAL TERMS ON MEASUREMENTS IN ELECTRICITY

UDC 621·317 : 001·4

© BIS 1994

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

March 1994

Price Group 6

Basic Electrotechnical Standards Sectional Committee, ET 01

CONTENTS

CHAPTER 301 : GENERAL TERMS ON MEASUREMENTS IN ELECTRICITY

Section		*Page*
301-01	Methods of measurement	1
301-02	Basic terms	2
301-03	General terms relating to the operation or the function	3
301-04	Measuring instruments	4
301-05	Miscellaneous devices	5
301-06	Terms relating to accessories	6
301-07	Terms relating to measuring instruments	6
301-08	Terms related to the specification of performance	8
301-09	Terms relating to technical characteristics	9
301-10	Performance	10
Index		11

NATIONAL FOREWORD

This Indian Standard (Part 80) which is identical with IEC Pub 50 (301) (1983) 'International electrotechnical vocabulary — Chapter 301 : General terms on measurements in electricity', issued by the International Electrotechnical Commission (IEC), was adopted by the Bureau of Indian Standards on the recommendation of Basic Electrotechnical Standards Sectional Committee and approval of the Electrotechnical Division Council.

Only the English text given in the IEC publication has been retained while adopting as Indian Standard, and the page numbers given here are not the same as in IEC Publication.

IS 1885 (Part XI):1966 Electrotechnical Vocabulary : Part XI Electrical Measurements was based on IEC Pub 50(20) (1958) International electrotechnical vocabulary:Group 20 Scientific and industrial measuring instruments. IEC 50(20) (1958) has been revised and extended and has been brought out in one volume as IEC 50(301, 302, 303), Chapter 301: General terms on measurements in electricity, Chapter 302: Electrical measuring instruments and Chapter 303: Electronic measuring instruments.

IS 1885(Part 80) is being brought as dual numbered standard of IEC 50(301) and similarly IEC 50(302) and IEC 50(303) are being dealt. When all the three parts of IS 1885 corresponding to IEC 50(301, 302, 303) have been brought out, IS 1885(Part XI): 1966 will stand withdrawn.

Indian Standard

ELECTROTECHNICAL VOCABULARY

PART 80 GENERAL TERMS ON MEASUREMENTS IN ELECTRICITY

CHAPTER 301: GENERAL TERMS ON MEASUREMENTS IN ELECTRICITY

SECTION 301-01 — METHODS OF MEASUREMENT

301-01-01

direct (method of) measurements

A method of measurement in which the value of a quantity to be measured is obtained directly, without the necessity for supplementary calculations based on a functional relationship between the quantity to be measured and other quantities actually measured.

Notes 1.— The measured quantity is considered to be obtained directly even when the scale of a measuring instrument has values which are linked to corresponding values of the measured quantity by means of a table or a graph.

2. — The method of measurement remains direct even if it is necessary to make supplementary measurements to determine the values of influence quantities in order to make corrections.

301-01-02

indirect (method of) measurement

A method of measurement in which the value of a quantity is obtained from measurements made by direct methods of measurement of other quantities linked to the quantity to be measured by a known relationship.

301-01-03

comparison (method of) measurement

A method of measurement based on the comparison of the value of a quantity to be measured with a known value of the same kind.

301-01-04

substitution (method of) measurement

A comparison method of measurement in which the value of the quantity to be measured is replaced by a known value of the same kind chosen in such a manner that the effects on the measuring instrument of these two values are the same.

301-01-05

complementary (method of) measurement

A comparison method of measurement in which the value of the quantity to be measured is combined with a known value of the same quantity so adjusted that the sum of these two values is equal to a predetermined comparison value.

301-01-06

differential (method of) measurement

A comparison method of measurement, based on comparing the quantity to be measured with a quantity of the same kind having a known value only slightly different from that of the quantity to be measured, and measuring the algebraic difference between the values of these two quantities.

301-01-07

null (method of) measurement

A differential method of measurement where the difference between the value of the measured quantity and the known value of the same kind with which it is compared is brought to zero.

301-01-08

beat (method of) measurement

A differential method of measurement which uses the phenomenon of beating between the frequencies related to two compared quantities, one being the quantity to be measured and the other the reference quantity.

301-01-09

resonance (method of) measurement

A comparison method of measurement in which a known relationship between the compared values of a particular quantity is established by means of the attainment of a condition of resonance or near-resonance.

SECTION 301-02 — BASIC TERMS

301-02-01

measuring instrument

A device intended to detect or measure a quantity or to supply a quantity for measurement purposes.

Note. — There is no exact English equivalent of the French term "instrument de mesurage" which includes both what are generally known as "material measures" and "measuring instruments". The term "measuring instrument" is used here as, logically, any instrument used in measurement is a measuring instrument.

301-02-02

measuring instrument

A measuring device intended to transform the measured quantity or a related quantity into an indication or equivalent information.

301-02-03

material measure

A measuring device which reproduces, in a permanent manner during its use, one or more known values of a defined quantity.

301-02-04

electrical measuring instrument

A measuring instrument intended to measure an electrical or non-electrical quantity using electrical means.

301-02-05

electronic measuring instrument

A measuring instrument intended to measure an electrical or non-electrical quantity using electronic means.

301-02-06

measuring equipment

An assembly of measuring instruments intended for specified measurement purposes.

301-02-07

measuring system

A set of independent elements constituted to achieve a given objective by performing specified measurements.

301-02-08

detecting instrument

An instrument intended to detect a quantity without special regard to its value, in some cases showing the approximate value and/or the sign of the quantity.

301-02-09

analogue (measuring) instrument

A measuring instrument intended to present or display the output information as a continuous function of the measured quantity.

301-02-10

digital (measuring) instrument

A measuring instrument in which the quantity to be measured is accepted as, or is converted into, coded discrete signals and which provides an output or display in digital form.

301-02-11

indicating (measuring) instrument

A measuring instrument which displays at any time the value of the measured quantity without recording it.

301-02-12

recording (measuring) instrument recorder

A measuring instrument which records on a recording medium information corresponding to the values of the measured quantity.

Notes 1. — Some recording instruments may incorporate an indicating device.

2. — Some recording instruments may record information corresponding to more than one measured quantity.

301-02-13

oscilloscope

An instrument intended to show, in the form of a transitory trace, instantaneous values of a quantity.

301-02-14

oscillograph

An instrument intended to record, in the form of a permanent trace, instantaneous values of a quantity.

301-02-15

integrating (measuring) instrument

A measuring instrument which gives the integral of an input quantity with respect to another quantity, generally time.

Note. — An electricity meter is an example of an integrating instrument.

301-02-16

measuring transducer (with electric output)

A device intended to transform, with a specified accuracy and according to a given law, the measured quantity, or a quantity already transformed therefrom, into an electrical quantity.

Notes 1. — If the input quantity is electrical, the input and output quantities may not be of the same kind, e.g. a voltage and a current.

2. — In certain cases, measuring transducers also have a specific name in respect of their function, e.g. amplifier, converter, transformer, etc.

301-02-17

telemeasuring equipment
telemetering equipment (deprecated in this sense)

An assembly of instruments intended to indicate or record the value of the measured quantity at a distance from the measuring point, using telecommunication techniques.

301-02-18

fixed (measuring) instrument

A measuring instrument designed to be permanently mounted and which is intended to be connected to (an) external circuit(s) by means of permanently installed conductors.

301-02-19

portable (measuring) instrument

A measuring instrument designed to be carried by hand and to be connected and disconnected by the user.

301-02-20

single range (measuring) instrument

A measuring instrument having only one measuring range.

301-02-21

multi-range (measuring) instrument

A measuring instrument having more than one measuring range.

301-02-22

multi-scale (measuring) instrument

A measuring instrument having more than one scale.

301-02-23

single function (measuring) instrument

A measuring instrument intended for the measurement of one kind of quantity only.

301-02-24

multi-function (measuring) instrument

A measuring instrument having a single indicating device intended to measure more than one kind of quantity.

301-02-25

multimeter

A multi-range multi-function measuring instrument intended to measure voltage, current and sometimes other electrical quantities such as resistance.

SECTION 301-03 — GENERAL TERMS RELATING TO THE OPERATION OR THE FUNCTION

301-03-01

measuring instrument with circuit control devices

An instrument which provides electric control signals at predetermined values of the measured quantity.

301-03-02

differential measuring instrument

An instrument intended to measure the difference between the values of two quantities of the same kind existing at practically the same time in different circuits.

301-03-03

summation instrument totalizer

An instrument intended to determine the sum of the values of quantities of the same kind measured simultaneously in different circuits.

301-03-04

ratio-meter

An instrument intended to measure the ratio of the values of two quantities of the same kind.

301-03-05

quotient-meter

An instrument intended to measure the quotient of the values of two quantities of different kinds.

301-03-06

XY recorder

A recording instrument in which the marking device is moved along two orthogonal axes by two separate devices, to each of which a quantity to be recorded is applied.

Note. — When one of the quantities is time, the instrument is called an X(t) or a Y(t) recorder.

SECTION 301-04 — MEASURING INSTRUMENTS

Preface. — For the majority of measuring instruments used for measuring a certain well-defined quantity, a special designation is used which may in some cases be based on the name of the inventor or designer, or a name chosen by him, though it is more usual for the name to be derived from that of the measured quantity (e.g. tachometer, vibrometer, chronometer), or that of the unit of measurement (e.g. voltmeter, coulometer, wattmeter), or a multiple or sub-multiple of the unit more suited to the measuring range of the instrument in question (e.g. milliammeter, kilovoltmeter, megohmmeter)

The list of terms defined in the present section is not exhaustive.

301-04-01

ammeter

An instrument intended to measure the value of a current.

301-04-02

galvanometer

An instrument intended to detect or measure a very small current.

301-04-03

voltmeter

An instrument intended to measure the value of a voltage.

301-04-04

electrometer

An instrument intended to detect or measure a voltage, absorbing negligible energy.

301-04-05

peak voltmeter

A voltmeter intended to measure the maximum instantaneous value of a fluctuating voltage.

301-04-06

wattmeter
active power meter

An instrument intended to measure active power.

301-04-07

varmeter
reactive power meter

An instrument intended to measure reactive power.

301-04-08

volt-ampere meter
apparent power meter

An instrument intended to measure apparent power.

301-04-09

ohmmeter
resistance meter

An instrument intended to measure electric resistance.

301-04-10

earth resistance meter

An instrument intended to measure the resistance of an earth connection.

301-04-11

insulation resistance meter

An instrument intended to measure insulation resistance.

301-04-12

frequency meter

An instrument intended to measure the frequency of a periodic quantity.

301-04-13

phase meter

An instrument intended to measure the phase angle between two alternating electrical quantities of the same frequency, one of which is accepted as the phase reference.

301-04-14

power factor meter

An instrument intended to measure the ratio between the active and the apparent power in an electrical circuit.

301-04-15

coulometer

An instrument intended to measure an amount of electric charge (quantity of electricity).

301-04-16

ampere-hour meter

An instrument intended to measure a quantity of electricity by integrating current with respect to time.

301-04-17

watt-hour meter
(active) energy meter

An instrument intended to measure active energy by integrating active power with respect to time.

301-04-18

var-hour meter
reactive energy meter

An instrument intended to measure reactive energy by integrating reactive power with respect to time.

301-04-19

volt-ampere-hour meter
apparent energy meter

An instrument intended to measure apparent energy by integrating apparent power with respect to time.

301-04-20

flux meter

An instrument intended to measure magnetic flux.

301-04-21

magnetometer

An instrument intended to measure the value of a magnetic flux density in a given direction.

301-04-22

permeameter

Equipment intended for the determination of the magnetic characteristics of substances.

SECTION 301-05 — MISCELLANEOUS DEVICES

301-05-01

reference source

A device which is intended to produce, for reference purposes, an electrical or magnetic quantity within specified tolerances.

301-05-02

(measurement) standard

A measuring instrument, apparatus or system intended to define, represent physically, conserve or reproduce either the unit of measurement of a quantity, or a multiple or sub-multiple thereof (e.g. standard resistor) or a known value of a quantity (e.g. standard cell).

301-05-03

reference-value method

A mode of reproducing a unit of measurement (or a multiple or sub-multiple of that unit) either in terms of fixed values of certain properties of bodies or in terms of physical constants.

301-05-04

primary standard

A standard of a particular quantity which has the highest metrological qualities in a given field.

Notes 1. — The concept of a primary standard is equally valid for base units and for derived units.

2. — The primary standard is never used directly for measurement other than for comparison with duplicate standards or reference standards.

301-05-05

secondary standard

A standard, whose value is fixed by direct or indirect comparison with a primary standard or by means of a reference-value method.

301-05-06

reference standard

A secondary standard with which standards of lower accuracy are compared.

301-05-07

working standard

A standard which, calibrated against a reference standard, is intended to verify working measuring instruments of lower accuracy.

301-05-08

international standard

A standard recognized by an international agreement to serve internationally as the basis for fixing the value of all other standards of the given quantity.

301-05-09

national standard

A standard recognized by an official national decision as the basis for fixing the value, in a country, of all other standards of the given quantity.

Note. — Generally, in a country, the national standard is also the primary standard.

301-05-10

comparison standard

A standard intended for the comparison among themselves of standards of the same order of accuracy.

301-05-11

measuring bridge

A measuring equipment consisting of at least four branches (arms) or groups of circuit elements (resistors, inductors, capacitors, etc), connected in a quadrilateral, one of whose diagonals is supplied by a source and the other is connected to a null detector or a measuring instrument.

301-05-12

(measuring) potentiometer

A voltage measuring instrument in which the voltage to be measured is opposed to a known voltage of the same waveform, frequency and value.

301-05-13

voltage divider

A device comprising resistors, inductors, capacitors, transformer(s) or a combination of these components such that between two points of the device a desired fraction of the voltage applied to the device as a whole can be obtained.

SECTION 301-06 — TERMS RELATING TO ACCESSORIES

301-06-01

accessory (for a measuring instrument)

An element, group of elements or device associated with a measuring instrument in order to confer on it different specified characteristics.

301-06-02

interchangeable accessory

An accessory having its own properties and accuracy, which are independent of those of the instruments with which it may be associated.

301-06-03

accessory of limited interchangeability

An accessory, having its own properties and accuracy, which can only be associated with measuring instruments for which certain characteristics are within specified limits.

301-06-04

non-interchangeable accessory

An accessory which is adapted to the characteristics of a specific instrument.

301-06-05

shunt

A resistor connected in parallel with the current circuit of a measuring instrument in order to reduce, by a known ratio, the current passing through it.

Note. — A shunt is generally intended to provide a voltage proportional to the current to be measured.

301-06-06 [07][08]

series resistor
[series capacitor]
[series inductor]

Resistor [capacitor] [inductor] connected in series with the voltage circuit of a measuring instrument in order to extend its effective range.

301-06-09

instrument lead

A lead comprising one or more conductors, specially designed for interconnecting measuring instruments and accessories.

SECTION 301-07 — TERMS RELATING TO MEASURING INSTRUMENTS

301-07-01

indicating device (of a measuring instrument)

The ensemble of components of a measuring instrument intended to indicate the value of the measured quantity.

Note — By extension, the indicating means or setting device of any instrument such as a material measure or a signal generator.

301-07-02

index (of an indicating device)

The fixed or movable part of the indicating device such as pointer, luminous spot or window, whose position, in relation to a scale, permits the value of the measured quantity to be determined.

301-07-03

scale (of an analogue instrument)

A series of marks, figures or other signs on the indicating device.

301-07-04

dial

The part of an indicating device carrying the scale or scales and generally including other information to characterize the instrument.

301-07-05

scale marking

The series of marks distributed on a scale according to an appropriate law.

Note. — The English word "graduation" means the process of setting out a scale.

301-07-06

scale numbering

Numbers assigned to certain scale marks.

301-07-07

scale length

The length of the line (curved or straight) which passes through the centres of all the shortest scale marks, contained between the first and the last scale marks.

301-07-08

scale division

The interval between any two consecutive scale marks.

301-07-09

length of a scale division

The part of the scale length between two consecutive marks.

301-07-10

scale interval

The difference between the values of the measured quantity corresponding to two consecutive scale marks.

301-07-11

digital readout

Presentation of the values of the measured quantity by means of figures appearing discontinuously, forming a number which directly indicates each of those values.

301-07-12

semidigital readout

Presentation of the values of the measured quantity by the combination of a digital readout and an indication by a scale and index.

301-07-13

indication of a measuring instrument

The value of the measured quantity indicated by the measuring instrument.

Notes 1. — This term can be applied most particularly to an indicating measuring instrument; however, when no ambiguity is possible, it can also be applied to the information displayed by a recording measuring instrument.

2. — The concept of the indication of a measuring instrument also refers to material measures.

3. — The term "indication" also means a presumed indication, obtained by interpolation of the position of the index of the instrument between adjacent scale marks.

4. — The value of the measured quantity can be directly indicated in units of that quantity or in conventional units. In this latter case, the direct indication must be multiplied by the constant of the instrument.

301-07-14

recording medium

Strip, disc or sheet on which the measured values are intended to be recorded.

301-07-15

recording chart

A recording medium, generally paper, usually provided with pre-printed lines with or without figures.

301-07-16

recording

The inscriptions made on the recording chart or the change of state of the recording medium.

301-07-17

recording device

The assembly of parts of a recording instrument which records the measured value on the recording medium.

301-07-18

constant of a measuring instrument

The factor or coefficient by which the indication must be multiplied to obtain the value of the measured quantity.

301-07-19

adjustment device
adjuster

A device intended to modify the performance of a measuring instrument to cause it to have desired characteristics.

301-07-20

zero scale mark

The mark on the scale associated with the zero of the scale numbering.

301-07-21

mechanical zero

The equilibrium position to which the indicating device of a measuring instrument tends to return due only to mechanical restoring forces, when the measuring element is not energized.

Notes. 1 — In instruments with a mechanically sup-pressed zero, the equilibrium position is out-side the scale marks.

2. — In certain instruments such as fluxmeters and quotient-meters, the mechanical zero is indeterminate.

301-07-22

mechanical zero adjuster

A mechanism by means of which the mechanical zero can be set to its required position.

301-07-23

electrical zero

For a measuring instrument which needs an auxiliary supply, the position to which the indicating device tends to return when the instrument is in service and when the measured quantity is zero.

Note. — The electrical zero does not necessarily coincide with the mechanical zero.

301-07-24

electrical zero adjuster

A device by means of which the electrical zero can be set to its required position.

SECTION 301-08 — TERMS RELATED TO THE SPECIFICATION OF PERFORMANCE

301-08-01

true value (of a quantity)

The value which characterizes a quantity perfectly defined, in the conditions which exist when that value is examined.

Note. — The true value of a quantity is an ideal concept and, in general, it cannot be known.

301-08-02

conventional true value (of a quantity)

A value approximating to the true value of a quantity such that, for the purpose for which that value is used, the difference between the two values can be neglected.

Notes 1. — The conventional true value of a quantity is generally determined by means of methods and by the use of instruments of an accuracy suitable for each particular case.

2. — Since the true value cannot be known exactly, for the sake of simplicity and where no ambiguity exists, the term "true value" may be used when "conventional true value" is meant.

301-08-03

fiducial value

A clearly specified value to which reference is made in order to define the fiducial error.

Note. — This value can be (e.g.) the upper limit of the measuring range, the scale length or another clearly stated value.

301-08-04

indicated value

— For a measuring instrument : the indicated or recorded value.

— For a material measure: the nominal or stated value.

— For a supply device: the set or nominal value.

301-08-05

comparison value

Can be, as appropriate the true value, the conventional true value or a value traced either to national standards or to standards agreed upon between the parties concerned.

301-08-06

absolute error

The algebraic difference between the indicated value and the comparison value:

Absolute error = indicated value – comparison value

301-08-07

relative error

The ratio of the absolute error to the comparison value.

301-08-08

fiducial error

The ratio of the absolute error to the fiducial value.

301-08-09

influence quantity

Any quantity, generally external to the measuring instrument, which may affect its performance.

301-08-10

reference conditions

The appropriate set of specified values and ranges of values of influence quantities under which the smallest permissible errors of a measuring instrument are specified.

301-08-11

intrinsic error

The error of a measuring instrument when used under reference conditions.

301-08-12

measuring range
effective range

The range defined by two values of the measured quantity, or quantity to be supplied, within which the limits of error of the measuring instrument are specified.

Note. — An instrument can have several measuring ranges.

301-08-13

span

The algebraic difference between the upper and lower limits of the measuring range.

301-08-14

(nominal) range

The fiducial value or the upper limit of the measuring (effective) range.

301-08-15

incremental range

The width of the band of values covered by incremental control around the value pre-set by the main control.

SECTION 301-09 — TERMS RELATING TO TECHNICAL CHARACTERISTICS

301-09-01

preliminary adjustments

Adjustments, specified by the manufacturer, that must be made before using the instrument so that it will operate with the specified accuracy.

301-09-02

readjustments

Adjustments, specified by the manufacturer, that must be made during the use of the instrument so that it will continue to operate with the specified accuracy.

301-09-03

calibration

All the operations for the purpose of determining the values of the errors and, if necessary, other metrological properties of a measuring instrument.

Note. — The metrological use of the term "calibration" is often extended to include operations such as adjustments, scale graduation, etc. This use is deprecated.

301-09-04

calibrating quantity

A quantity such as current, voltage or frequency, having known values with specified tolerances and intended to be used for calibration.

301-09-05

warm-up time

The interval between the energizing of the auxiliary circuit and the instant when the instrument may be used, specified in the manufacturer's instructions.

301-09-06

pre-conditioning time

The time between the instant when a specified value of the measured quantity is applied to the internal measuring circuit and the instant when the instrument is intended to comply with the accuracy requirements.

301-09-07

overshot (for a step change)

Difference between the extreme transient indicated value and the steady-state value in response to a step change of the measured quantity.

301-09-08

step response time

The time interval between the instant when the quantity measured or supplied is subjected to a specified abrupt change and the instant when the indication or output quantity reaches and remains within specified limits of its final steady value.

SECTION 301-10 — PERFORMANCE

301-10-01

accuracy (of a measuring instrument)

The quality which characterizes the closeness of an indicated value of a measuring instrument to the corresponding true value.

Note. — Accuracy is greater when the indicated value is closer to the corresponding true value.

301-10-02

linearity (of a measuring instrument)

The ability of a measuring instrument to provide an indication or output quantity having a linear relationship to a defined quantity other than an influence quantity.

Note. — The method of expression of lack of linearity is different for different kinds of instrument and is established in each particular case.

301-10-03

resolution

The smallest change in the measured or supplied quantity to which a numerical value can be assigned without interpolation.

301-10-04

repeatability (of measurements)

The closeness of agreement between the results of successive measurements of the same value of the same quantity carried out:

— by the same method

— with the same measuring instruments

— by the same observer

— in the same laboratory

— at quite short intervals of time

— in unchanged conditions.

301-10-05

reproducibility (of measurements)

The closeness of the agreement between the results of measurements of the same value of the same quantity, where the individual measurements are made:

— by different methods

— with different measuring instruments

— by different observers

— in different laboratories

— after intervals of time quite long compared with the duration of a single measurement

— under different customary conditions of use of the instruments employed.

Note. — The term "reproducibility" also applies to the case where only certain of the preceding conditions are taken into account.

INDEX

A

absolute error 301-08-06
accessory (for a measuring instrument) 301-06-01
accessory of limited interchangeability 301-06-03
accuracy (of a measuring instrument) 301-10-01
(active) energy meter 301-04-17
active power meter 301-04-06
adjuster 301-07-19
adjustment device 301-07-19
ammeter 301-04-01
analogue (measuring) instrument 301-02-09
ampere-hour meter 301-04-16
apparent energy meter 301-04-19
apparent power meter 301-04-08

B

beat method (of measurement) 301-01-08

C

calibrating quantity 301-09-04
calibration 301-09-03
comparison (method of) measurement 301-01-03
comparison standard 301-05-10
comparison value 301-08-05
complementary (method of) measurement 301-01-05
constant of a measuring instrument 301-07-18
conventional true value (of a quantity) 301-08-02
coulometer 301-04-15

D

detecting instrument 301-02-08
dial 301-07-04
differential measuring instrument 301-03-02
differential (method of) measurement 301-01-06
digital (measuring) instrument 301-02-10
digital readout 301-07-11
direct (method of) measurement 301-01-01

E

earth resistance meter 301-04-10
effective range 301-08-12
electrical measuring instrument 301-02-04
electrical zero 301-07-23
electrical zero adjuster 301-07-24
electrometer 301-04-04
electronic measuring instrument 301-02-05

F

fiducial error 301-08-08
fiducial value 301-08-03
fixed (measuring) instrument 301-02-18
flux meter 301-04-20
frequency meter 301-04-12

G

galvanometer 301-04-02

I

incremental range 301-08-15
indicated value 301-08-04
indicating device (of a measuring instrument) 301-07-01
indicating (measuring) instrument 301-02-11
indication of a measuring instrument 301-07-13
index (of an indicating device) 301-07-02
indirect (method of) measurement 301-01-02
influence quantity 301-08-09
instrument lead 301-06-09
insulation resistance meter 301-04-11
integrating (measuring) instrument 301-02-15
interchangeable accessory 301-06-02
international standard 301-05-08
intrinsic error 301-08-11

L

length of a scale division 301-07-09
linearity (of a measuring instrument) 301-10-02

M

magnetometer 301-04-21
material measure 301-02-03
(measurement) standard 301-05-02
measuring bridge 301-05-11
measuring equipment 301-02-06
measuring instrument 301-02-01
measuring instrument 301-02-02
measuring instrument with circuit control devices 301-03-01
(measuring) potentiometer 301-05-12
measuring range 301-08-12
measuring system 301-02-07
measuring transducer (with electric output) 301-02-16
mechanical zero 301-07-21
mechanical zero adjuster 301-07-22
multi-function (measuring) instrument 301-02-24
multimeter 301-02-25
multi-range (measuring) instrument 301-02-21
multi-scale (measuring) instrument 301-02-22

N

national standard 301-05-09
(nominal) range 301-08-14

non-interchangeable accessory	301-06-04
null (method of) measurement	301-01-07

O

ohmmeter	301-04-09
oscilloscope	301-02-13
oscillograph	301-02-14
overshot (for a step change)	301-09-07

P

peak voltmeter	301-04-05
permeameter	301-04-22
phase meter	301-04-13
portable (measuring) instrument	301-02-19
power factor meter	301-04-14
preconditioning time	301-09-06
preliminary adjustments	301-09-01
primary standard	301-05-04

Q

quotient-meter	301-03-05

R

ratio-meter	301-03-04
reactive energy meter	301-04-18
reactive power meter	301-04-07
readjustments	301-09-02
recorder	301-02-12
recording	301-07-16
recording chart	301-07-15
recording device	301-07-17
recording (measuring) instrument	301-02-12
recording medium	301-07-14
reference conditions	301-08-10
reference source	301-05-01
reference standard	301-05-06
reference-value method	301-05-03
relative error	301-08-07
repeatability (of measurements)	301-10-04
reproducibility (of measurements)	301-10-05
resistance meter	301-04-09
resolution	301-10-03
resonance method of (measurement)	301-01-09

S

scale division	301-07-08
scale interval	301-07-10
scale length	301-07-07
scale marking	301-07-05
scale numbering	301-07-06
scale (of an analogue instrument)	301-07-03
secondary standard	301-05-05
semidigital readout	301-07-12
series capacitor	301-06-07
series inductor	301-06-08
series resistor	301-06-06
shunt	301-06-05
single function (measuring) instrument	301-02-23
single range (measuring) instrument	301-02-20
span	301-08-13
step response time	301-09-08
substitution (method of) measurement	301-01-04
summation instrument	301-03-03

T

telemeasuring equipment	301-02-17
telemetering equipment (deprecated in this sense)	301-02-17
totalizer	301-03-03
true value (of a quantity)	301-08-01

V

var-hour meter	301-04-18
varmeter	301-04-07
voltage divider	301-05-13
volt-ampere-hour meter	301-04-19
volt-ampere meter	301-0 -08
voltmeter	301-04-03

W

warm-up time	301-09-05
watt-hour meter	301-04-17
wattmeter	301-04-06
working standard	301-05-07

XY

XY recorder	301-03-06

Z

zero scale mark	301-07-20

Standard Mark

The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act, 1986* to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Copyright

BIS has the copyright of all its publications. No part of these publications may be reproduced in any form without the prior permission in writing of BIS. This does not preclude the free use, in the course of implementing the standard, of necessary details, such as symbols and sizes, type or grade designations. Enquiries relating to copyright be addressed to the Director (Publications), BIS.

Revision of Indian Standards

Indian Standards are reviewed periodically and revised, when necessary and amendments, if any, are issued from time to time. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition. Comments on this Indian Standard may be sent to BIS giving the following reference:

Doc. No. ET 01 (3434)

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones : 331 01 31, 331 13 75
Telegrams : Manaksanstha
(Common to all Offices)

Regional Offices :	Telephone
Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110002	331 01 31 331 13 75
Eastern : 1/14 C. I. T. Scheme VII M, V. I. P. Road, Maniktola CALCUTTA 700054	37 84 99, 37 85 61, 37 86 26, 37 86 62
Northern : SCO 445-446, Sector 35-C, CHANDIGARH 160036	53 38 43, 53 16 40, 53 23 84
Southern : C. I. T. Campus, IV Cross Road, MADRAS 600113	235 02 16, 235 04 42, 235 15 19, 235 23 15
Western : Manakalaya, E9 MIDC, Marol, Andheri (East) BOMBAY 400093	632 92 95, 632 78 58, 632 78 91, 632 78 92

Branches : AHMADABAD, BANGALORE, BHOPAL, BHUBANESHWAR, COIMBATORE, FARIDABAD, GHAZIABAD, GUWAHATI, HYDERABAD, JAIPUR, KANPUR, LUCKNOW, PATNA, THIRUVANANTHAPURAM.

Reprography Unit, BIS, New Delhi, India